

SEQUENCE LISTING

<110> Frank, Markus

Sayegh, Mohamed

<120> A Gene Encoding a Multidrug Resistance Human P-Glycoprotein Homologue on Chromosome 7p15-21 and Uses Thereof

<130> 81994/268611

<160> 19

<170> PatentIn version 3.0

<210> 1

<211> 659

<212> PRT

<213> Homo sapiens

<400> 1

Met Leu Ala Glu Lys Gly Ala His Ala Glu Leu Met Ala Lys Arg Gly
1 5 10 15

Leu Tyr Tyr Ser Leu Val Met Ser Gln Asp Ile Lys Lys Ala Asp Glu
20 25 30

Gln Met Glu Ser Met Thr Tyr Ser Thr Glu Arg Lys Thr Asn Ser Leu
35 40 45

Pro Leu His Ser Val Lys Ser Ile Lys Ser Asp Phe Ile Asp Lys Ala
50 55 60

Glu Glu Ser Thr Gln Ser Lys Glu Ile Ser Leu Pro Glu Val Ser Leu
65 70 75 80

Leu Lys Ile Leu Lys Leu Asn Lys Pro Glu Trp Pro Phe Val Val Leu
85 90 95

Gly Thr Leu Ala Ser Val Leu Asn Gly Thr Val His Pro Val Phe Ser
100 105 110

Ile Ile Phe Ala Lys Ile Ile Thr Met Phe Gly Asn Asn Asp Lys Thr
115 120 125

Thr Leu Lys His Asp Ala Glu Ile Tyr Ser Met Ile Phe Val Ile Leu
130 135 140

Gly Val Ile Cys Phe Val Ser Tyr Phe Met Gln Gly Leu Phe Tyr Gly
145 150 155 160

Arg Ala Gly Glu Ile Leu Thr Met Arg Leu Arg His Leu Ala Phe Lys
 165 170 175
 Ala Met Leu Tyr Gln Asp Ile Ala Trp Phe Asp Glu Lys Glu Asn Ser
 180 185 190
 Thr Gly Gly Leu Thr Thr Ile Leu Ala Ile Asp Ile Ala Gln Ile Gln
 195 200 205
 Gly Ala Thr Gly Ser Arg Ile Gly Val Leu Thr Gln Asn Ala Thr Asn
 210 215 220
 Met Gly Leu Ser Val Ile Ile Ser Phe Ile Tyr Gly Trp Glu Met Thr
 225 230 235 240
 Phe Leu Ile Leu Ser Ile Ala Pro Val Leu Ala Val Thr Gly Met Ile
 245 250 255
 Glu Thr Ala Ala Met Thr Gly Phe Ala Asn Lys Asp Lys Gln Glu Leu
 260 265 270
 Lys His Ala Gly Lys Ile Ala Thr Glu Ala Leu Glu Asn Ile Arg Thr
 275 280 285
 Ile Val Ser Leu Thr Arg Glu Lys Ala Phe Glu Gln Met Tyr Glu Glu
 290 295 300
 Met Leu Gln Thr Gln His Arg Asn Thr Ser Lys Lys Ala Gln Ile Ile
 305 310 315 320
 Gly Ser Cys Tyr Ala Phe Ser His Ala Phe Ile Tyr Phe Ala Tyr Ala
 325 330 335
 Ala Gly Phe Arg Phe Gly Ala Tyr Leu Ile Gln Ala Gly Arg Met Thr
 340 345 350
 Pro Glu Gly Met Phe Ile Val Phe Thr Ala Ile Ala Tyr Gly Ala Met
 355 360 365
 Ala Ile Gly Lys Thr Leu Val Leu Ala Pro Glu Tyr Ser Lys Ala Lys
 370 375 380
 Ser Gly Ala Ala His Leu Phe Ala Leu Leu Glu Lys Lys Pro Asn Ile
 385 390 395 400
 Asp Ser Arg Ser Gln Glu Gly Lys Lys Pro Asp Thr Cys Glu Gly Asn
 405 410 415
 Leu Glu Phe Arg Glu Val Ser Phe Phe Tyr Pro Cys Arg Pro Asp Val
 420 425 430
 Phe Ile Leu Arg Gly Leu Ser Leu Ser Ile Glu Arg Gly Lys Thr Val
 435 440 445
 Ala Phe Val Gly Ser Ser Gly Cys Gly Lys Ser Thr Ser Val Gln Leu
 450 455 460
 Leu Gln Arg Leu Tyr Asp Pro Val Gln Gly Gln Val Leu Phe Asp Gly
 465 470 475 480
 Val Asp Ala Lys Glu Leu Asn Val Gln Trp Leu Arg Ser Gln Ile Ala
 485 490 495

Ile Val Pro Gln Glu Pro Val Leu Phe Asn Cys Ser Ile Ala Glu Asn
 500 505 510

Ile Ala Tyr Gly Asp Asn Ser Arg Val Val Pro Leu Asp Glu Ile Lys
 515 520 525

Glu Ala Ala Asn Ala Ala Asn Ile His Ser Phe Ile Glu Gly Leu Pro
 530 535 540

Glu Lys Tyr Asn Thr Gln Val Gly Leu Lys Gly Ala Gln Leu Ser Gly
 545 550 555 560

Gly Gln Lys Gln Arg Leu Ala Ile Ala Arg Ala Leu Leu Gln Lys Pro
 565 570 575

Lys Ile Leu Leu Leu Asp Glu Ala Thr Ser Ala Leu Asp Asn Asp Ser
 580 585 590

Glu Lys Val Val Gln His Ala Leu Asp Lys Ala Arg Thr Gly Arg Thr
 595 600 605

Cys Leu Val Val Thr His Arg Leu Ser Ala Ile Gln Asn Ala Asp Leu
 610 615 620

Ile Val Val Leu His Asn Gly Lys Ile Lys Glu Gln Gly Thr His Gln
 625 630 635 640

Glu Leu Leu Arg Asn Arg Asp Ile Tyr Phe Lys Leu Val Asn Ala Gln
 645 650 655

Ser Val Gln

<210> 2

<211> 812

<212> PRT

<213> Homo sapiens

<400> 2

Met Val Asp Glu Asn Asp Ile Arg Ala Leu Asn Val Arg His Tyr Arg
 1 5 10 15

Asp His Ile Gly Val Val Ser Gln Glu Pro Val Leu Phe Gly Thr Thr
 20 25 30

Ile Ser Asn Asn Ile Lys Tyr Gly Arg Asp Asp Val Thr Asp Glu Glu
 35 40 45

Met Glu Arg Ala Ala Arg Glu Ala Asn Ala Tyr Asp Phe Ile Met Glu
 50 55 60

Phe Pro Asn Lys Phe Asn Thr Leu Val Gly Glu Lys Gly Ala Gln Met
 65 70 75 80

Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala Leu Val Arg
 85 90 95

Asn Pro Lys Ile Leu Ile Leu Asp Glu Ala Thr Ser Ala Leu Asp Ser
 100 105 110
 Glu Ser Lys Ser Ala Val Gln Ala Ala Leu Glu Lys Ala Ser Lys Gly
 115 120 125
 Arg Thr Thr Ile Val Val Ala His Arg Leu Ser Thr Ile Arg Ser Ala
 130 135 140
 Asp Leu Ile Val Thr Leu Lys Asp Gly Met Leu Ala Glu Lys Gly Ala
 145 150 155 160
 His Ala Glu Leu Met Ala Lys Arg Gly Leu Tyr Tyr Ser Leu Val Met
 165 170 175
 Ser Gln Asp Ile Lys Lys Ala Asp Glu Gln Met Glu Ser Met Thr Tyr
 180 185 190
 Ser Thr Glu Arg Lys Thr Asn Ser Leu Pro Leu His Ser Val Lys Ser
 195 200 205
 Ile Lys Ser Asp Phe Ile Asp Lys Ala Glu Glu Ser Thr Gln Ser Lys
 210 215 220
 Glu Ile Ser Leu Pro Glu Val Ser Leu Leu Lys Ile Leu Lys Leu Asn
 225 230 235 240
 Lys Pro Glu Trp Pro Phe Val Val Leu Gly Thr Leu Ala Ser Val Leu
 245 250 255
 Asn Gly Thr Val His Pro Val Phe Ser Ile Ile Phe Ala Lys Ile Ile
 260 265 270
 Thr Met Phe Gly Asn Asn Asp Lys Thr Thr Leu Lys His Asp Ala Glu
 275 280 285
 Ile Tyr Ser Met Ile Phe Val Ile Leu Gly Val Ile Cys Phe Val Ser
 290 295 300
 Tyr Phe Met Gln Gly Leu Phe Tyr Gly Arg Ala Gly Glu Ile Leu Thr
 305 310 315 320
 Met Arg Leu Arg His Leu Ala Phe Lys Ala Met Leu Tyr Gln Asp Ile
 325 330 335
 Ala Trp Phe Asp Glu Lys Glu Asn Ser Thr Gly Gly Leu Thr Thr Ile
 340 345 350
 Leu Ala Ile Asp Ile Ala Gln Ile Gln Gly Ala Thr Gly Ser Arg Ile
 355 360 365
 Gly Val Leu Thr Gln Asn Ala Thr Asn Met Gly Leu Ser Val Ile Ile
 370 375 380
 Ser Phe Ile Tyr Gly Trp Glu Met Thr Phe Leu Ile Leu Ser Ile Ala
 385 390 395 400
 Pro Val Leu Ala Val Thr Gly Met Ile Glu Thr Ala Ala Met Thr Gly
 405 410 415
 Phe Ala Asn Lys Asp Lys Gln Glu Leu Lys His Ala Gly Lys Ile Ala
 420 425 430

Thr Glu Ala Leu Glu Asn Ile Arg Thr Ile Val Ser Leu Thr Arg Glu
 435 440 445
 Lys Ala Phe Glu Gln Met Tyr Glu Glu Met Leu Gln Thr Gln His Arg
 450 455 460
 Asn Thr Ser Lys Lys Ala Gln Ile Ile Gly Ser Cys Tyr Ala Phe Ser
 465 470 475 480
 His Ala Phe Ile Tyr Phe Ala Tyr Ala Ala Gly Phe Arg Phe Gly Ala
 485 490 495
 Tyr Leu Ile Gln Ala Gly Arg Met Thr Pro Glu Gly Met Phe Ile Val
 500 505 510
 Phe Thr Ala Ile Ala Tyr Gly Ala Met Ala Ile Gly Lys Thr Leu Val
 515 520 525
 Leu Ala Pro Glu Tyr Ser Lys Ala Lys Ser Gly Ala Ala His Leu Phe
 530 535 540
 Ala Leu Leu Glu Lys Lys Pro Asn Ile Asp Ser Arg Ser Gln Glu Gly
 545 550 555 560
 Lys Lys Pro Asp Thr Cys Glu Gly Asn Leu Glu Phe Arg Glu Val Ser
 565 570 575
 Phe Phe Tyr Pro Cys Arg Pro Asp Val Phe Ile Leu Arg Gly Leu Ser
 580 585 590
 Leu Ser Ile Glu Arg Gly Lys Thr Val Ala Phe Val Gly Ser Ser Gly
 595 600 605
 Cys Gly Lys Ser Thr Ser Val Gln Leu Leu Gln Arg Leu Tyr Asp Pro
 610 615 620
 Val Gln Gly Gln Val Leu Phe Asp Gly Val Asp Ala Lys Glu Leu Asn
 625 630 635 640
 Val Gln Trp Leu Arg Ser Gln Ile Ala Ile Val Pro Gln Glu Pro Val
 645 650 655
 Leu Phe Asn Cys Ser Ile Ala Glu Asn Ile Ala Tyr Gly Asp Asn Ser
 660 665 670
 Arg Val Val Pro Leu Asp Glu Ile Lys Glu Ala Ala Asn Ala Ala Asn
 675 680 685
 Ile His Ser Phe Ile Glu Gly Leu Pro Glu Lys Tyr Asn Thr Gln Val
 690 695 700
 Gly Leu Lys Gly Ala Gln Leu Ser Gly Gly Gln Lys Gln Arg Leu Ala
 705 710 715 720
 Ile Ala Arg Ala Leu Leu Gln Lys Pro Lys Ile Leu Leu Leu Asp Glu
 725 730 735
 Ala Thr Ser Ala Leu Asp Asn Asp Ser Glu Lys Val Val Gln His Ala
 740 745 750
 Leu Asp Lys Ala Arg Thr Gly Arg Thr Cys Leu Val Val Thr His Arg
 755 760 765

Leu Ser Ala Ile Gln Asn Ala Asp Leu Ile Val Val Leu His Asn Gly
 770 775 780
 Lys Ile Lys Glu Gln Gly Thr His Gln Glu Leu Leu Arg Asn Arg Asp
 785 790 800
 Ile Tyr Phe Lys Leu Val Asn Ala Gln Ser Val Gln
 805 810

<210> 3

<211> 131

<212> PRT

<213> Homo sapiens

<400> 3

Met Val Asp Glu Asn Asp Ile Arg Ala Leu Asn Val Arg His Tyr Arg
 1 5 10 15

Asp His Ile Gly Val Val Ser Gln Glu Pro Val Leu Phe Gly Thr Thr
 20 25 30

Ile Ser Asn Asn Ile Lys Tyr Gly Arg Asp Asp Val Thr Asp Glu Glu
 35 40 45

Met Glu Arg Ala Ala Arg Glu Ala Asn Ala Tyr Asp Phe Ile Met Glu
 50 55 60

Phe Pro Asn Lys Phe Asn Thr Leu Val Gly Glu Lys Gly Ala Gln Met
 65 70 75 80

Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala Leu Val Arg
 85 90 95

Asn Pro Lys Ile Leu Ile Leu Asp Glu Ala Thr Ser Ala Leu Asp Ser
 100 105 110

Glu Ser Lys Ser Ala Val Gln Ala Ala Leu Glu Lys Asp Thr Pro Arg
 115 120 125

Tyr Ser Phe
 130

<210> 4

<211> 1058

<212> PRT

<213> Homo sapiens

<220>

<221> Note

<222> (66) .. (66)

<223> Xaa at position 66 represents any L amino acid

<400> 4

Met	Val	Ile	Ser	Leu	Thr	Ser	Lys	Glu	Leu	Ser	Ala	Tyr	Ser	Lys	Ala
1				5					10					15	
Gly	Ala	Val	Ala	Glu	Glu	Val	Leu	Ser	Ser	Ile	Arg	Thr	Val	Ile	Ala
				20					25					30	
Phe	Arg	Ala	Gln	Glu	Lys	Glu	Leu	Gln	Arg	Ser	Phe	Leu	Leu	Asn	Ile
				35				40					45		
Thr	Arg	Tyr	Ala	Trp	Phe	Tyr	Phe	Pro	Gln	Trp	Leu	Leu	Ser	Cys	Val
				50				55				60			
Leu	Xaa	Phe	Val	Arg	Tyr	Thr	Gln	Asn	Leu	Lys	Asp	Ala	Lys	Asp	Phe
				65			70			75				80	
Gly	Ile	Lys	Arg	Thr	Ile	Ala	Ser	Lys	Val	Ser	Leu	Gly	Ala	Val	Tyr
				85					90				95		
Phe	Phe	Met	Asn	Gly	Thr	Tyr	Gly	Leu	Ala	Phe	Trp	Tyr	Gly	Thr	Ser
				100				105					110		
Leu	Ile	Leu	Asn	Gly	Glu	Pro	Gly	Tyr	Thr	Ile	Gly	Thr	Val	Leu	Ala
				115			120					125			
Val	Phe	Phe	Ser	Val	Ile	His	Ser	Ser	Tyr	Cys	Ile	Gly	Ala	Ala	Val
				130			135					140			
Pro	His	Phe	Glu	Thr	Phe	Ala	Ile	Ala	Arg	Gly	Ala	Ala	Phe	His	Ile
				145			150			155				160	
Phe	Gln	Val	Ile	Asp	Lys	Lys	Pro	Ser	Ile	Asp	Asn	Phe	Ser	Thr	Ala
				165					170				175		
Gly	Tyr	Lys	Pro	Glu	Ser	Ile	Glu	Gly	Thr	Val	Glu	Phe	Lys	Asn	Val
				180				185				190			
Ser	Phe	Asn	Tyr	Pro	Ser	Arg	Pro	Ser	Ile	Lys	Ile	Leu	Lys	Gly	Leu
				195			200					205			
Asn	Leu	Arg	Ile	Lys	Ser	Gly	Glu	Thr	Val	Ala	Leu	Val	Gly	Leu	Asn
				210				215				220			
Gly	Ser	Gly	Lys	Ser	Thr	Val	Val	Gln	Leu	Leu	Gln	Arg	Leu	Tyr	Asp
				225			230				235				240
Pro	Asp	Asp	Gly	Phe	Ile	Met	Val	Asp	Glu	Asn	Asp	Ile	Arg	Ala	Leu
				245					250				255		
Asn	Val	Arg	His	Tyr	Arg	Asp	His	Ile	Gly	Val	Val	Ser	Gln	Glu	Pro
				260				265				270			
Val	Leu	Phe	Gly	Thr	Thr	Ile	Ser	Asn	Asn	Ile	Lys	Tyr	Gly	Arg	Asp
				275				280				285			
Asp	Val	Thr	Asp	Glu	Glu	Met	Glu	Arg	Ala	Ala	Arg	Glu	Ala	Asn	Ala
				290			295				300				

Tyr Asp Phe Ile Met Glu Phe Pro Asn Lys Phe Asn Thr Leu Val Gly
 305 310 315 320

Glu Lys Gly Ala Gln Met Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile
 325 330 335

Ala Arg Ala Leu Val Arg Asn Pro Lys Ile Leu Ile Leu Asp Glu Ala
 340 345 350

Thr Ser Ala Leu Asp Ser Glu Ser Lys Ser Ala Val Gln Ala Ala Leu
 355 360 365

Glu Lys Ala Ser Lys Gly Arg Thr Thr Ile Val Val Ala His Arg Leu
 370 375 380

Ser Thr Ile Arg Ser Ala Asp Leu Ile Val Thr Leu Lys Asp Gly Met
 385 390 395 400

Leu Ala Glu Lys Gly Ala His Ala Glu Leu Met Ala Lys Arg Gly Leu
 405 410 415

Tyr Tyr Ser Leu Val Met Ser Gln Asp Ile Lys Lys Ala Asp Glu Gln
 420 425 430

Met Glu Ser Met Thr Tyr Ser Thr Glu Arg Lys Thr Asn Ser Leu Pro
 435 440 445

Leu His Ser Val Lys Ser Ile Lys Ser Asp Phe Ile Asp Lys Ala Glu
 450 455 460

Glu Ser Thr Gln Ser Lys Glu Ile Ser Leu Pro Glu Val Ser Leu Leu
 465 470 475 480

Lys Ile Leu Lys Leu Asn Lys Pro Glu Trp Pro Phe Val Val Leu Gly
 485 490 495

Thr Leu Ala Ser Val Leu Asn Gly Thr Val His Pro Val Phe Ser Ile
 500 505 510

Ile Phe Ala Lys Ile Ile Thr Met Phe Gly Asn Asn Asp Lys Thr Thr
 515 520 525

Leu Lys His Asp Ala Glu Ile Tyr Ser Met Ile Phe Val Ile Leu Gly
 530 535 540

Val Ile Cys Phe Val Ser Tyr Phe Met Gln Gly Leu Phe Tyr Gly Arg
 545 550 555 560

Ala Gly Glu Ile Leu Thr Met Arg Leu Arg His Leu Ala Phe Lys Ala
 565 570 575

Met Leu Tyr Gln Asp Ile Ala Trp Phe Asp Glu Lys Glu Asn Ser Thr
 580 585 590

Gly Gly Leu Thr Thr Ile Leu Ala Ile Asp Ile Ala Gln Ile Gln Gly
 595 600 605

Ala Thr Gly Ser Arg Ile Gly Val Leu Thr Gln Asn Ala Thr Asn Met
 610 615 620

Gly Leu Ser Val Ile Ile Ser Phe Ile Tyr Gly Trp Glu Met Thr Phe
 625 630 635 640

Leu Ile Leu Ser Ile Ala Pro Val Leu Ala Val Thr Gly Met Ile Glu
 645 650 655
 Thr Ala Ala Met Thr Gly Phe Ala Asn Lys Asp Lys Gln Glu Leu Lys
 660 665 670
 His Ala Gly Lys Ile Ala Thr Glu Ala Leu Glu Asn Ile Arg Thr Ile
 675 680 685
 Val Ser Leu Thr Arg Glu Lys Ala Phe Glu Gln Met Tyr Glu Glu Met
 690 695 700
 Leu Gln Thr Gln His Arg Asn Thr Ser Lys Lys Ala Gln Ile Ile Gly
 705 710 715 720
 Ser Cys Tyr Ala Phe Ser His Ala Phe Ile Tyr Phe Ala Tyr Ala Ala
 725 730 735
 Gly Phe Arg Phe Gly Ala Tyr Leu Ile Gln Ala Gly Arg Met Thr Pro
 740 745 750
 Glu Gly Met Phe Ile Val Phe Thr Ala Ile Ala Tyr Gly Ala Met Ala
 755 760 765
 Ile Gly Lys Thr Leu Val Leu Ala Pro Glu Tyr Ser Lys Ala Lys Ser
 770 775 780
 Gly Ala Ala His Leu Phe Ala Leu Leu Glu Lys Lys Pro Asn Ile Asp
 785 790 795 800
 Ser Arg Ser Gln Glu Gly Lys Lys Pro Asp Thr Cys Glu Gly Asn Leu
 805 810 815
 Glu Phe Arg Glu Val Ser Phe Phe Tyr Pro Cys Arg Pro Asp Val Phe
 820 825 830
 Ile Leu Arg Gly Leu Ser Leu Ser Ile Glu Arg Gly Lys Thr Val Ala
 835 840 845
 Phe Val Gly Ser Ser Gly Cys Gly Lys Ser Thr Ser Val Gln Leu Leu
 850 855 860
 Gln Arg Leu Tyr Asp Pro Val Gln Gly Gln Val Leu Phe Asp Gly Val
 865 870 875 880
 Asp Ala Lys Glu Leu Asn Val Gln Trp Leu Arg Ser Gln Ile Ala Ile
 885 890 895
 Val Pro Gln Glu Pro Val Leu Phe Asn Cys Ser Ile Ala Glu Asn Ile
 900 905 910
 Ala Tyr Gly Asp Asn Ser Arg Val Val Pro Leu Asp Glu Ile Lys Glu
 915 920 925
 Ala Ala Asn Ala Ala Asn Ile His Ser Phe Ile Glu Gly Leu Pro Glu
 930 935 940
 Lys Tyr Asn Thr Gln Val Gly Leu Lys Gly Ala Gln Leu Ser Gly Gly
 945 950 955 960
 Gln Lys Gln Arg Leu Ala Ile Ala Arg Ala Leu Leu Gln Lys Pro Lys
 965 970 975

Ile Leu Leu Leu Asp Glu Ala Thr Ser Ala Leu Asp Asn Asp Ser Glu
 980 985 990

Lys Val Val Gln His Ala Leu Asp Lys Ala Arg Thr Gly Arg Thr Cys
 995 1000 1005

Leu Val Val Thr His Arg Leu Ser Ala Ile Gln Asn Ala Asp Leu
 1010 1015 1020

Ile Val Val Leu His Asn Gly Lys Ile Lys Glu Gln Gly Thr His
 1025 1030 1035

Gln Glu Leu Leu Arg Asn Arg Asp Ile Tyr Phe Lys Leu Val Asn
 1040 1045 1050

Ala Gln Ser Val Gln
 1055

<210> 5

<211> 1222

<212> PRT

<213> Homo sapiens

<220>

<221> Note

<222> (230)..(230)

<223> Xaa at position 230 represents any L amino acid

<400> 5

Met Ile Leu Gly Ile Leu Ala Ser Leu Val Asn Gly Ala Cys Leu Pro
 1 5 10 15

Leu Met Pro Leu Val Leu Gly Glu Met Ser Asp Asn Leu Ile Ser Gly
 20 25 30

Cys Leu Val Gln Thr Asn Thr Tyr Ser Phe Phe Arg Leu Thr Leu Tyr
 35 40 45

Tyr Val Gly Ile Gly Val Ala Ala Leu Ile Phe Gly Tyr Ile Gln Ile
 50 55 60

Ser Leu Trp Ile Ile Thr Ala Ala Arg Gln Thr Lys Arg Ile Arg Lys
 65 70 75 80

Gln Phe Phe His Ser Val Leu Ala Gln Asp Ile Gly Trp Phe Asp Ser
 85 90 95

Cys Asp Ile Gly Glu Leu Asn Thr Arg Met Thr Asp Ile Asp Lys Ile
 100 105 110

Ser Asp Gly Ile Gly Asp Lys Ile Ala Leu Leu Phe Gln Asn Met Ser
 115 120 125

Thr Phe Ser Ile Gly Leu Ala Val Gly Leu Val Lys Gly Trp Lys Leu
 130 135 140

Thr Leu Val Thr Leu Ser Thr Ser Pro Leu Ile Met Ala Ser Ala Ala
 145 150 155 160

Ala Cys Ser Arg Met Val Ile Ser Leu Thr Ser Lys Glu Leu Ser Ala
 165 170 175

Tyr Ser Lys Ala Gly Ala Val Ala Glu Glu Val Leu Ser Ser Ile Arg
 180 185 190

Thr Val Ile Ala Phe Arg Ala Gln Glu Lys Glu Leu Gln Arg Ser Phe
 195 200 205

Leu Leu Asn Ile Thr Arg Tyr Ala Trp Phe Tyr Phe Pro Gln Trp Leu
 210 215 220

Leu Ser Cys Val Leu Xaa Phe Val Arg Tyr Thr Gln Asn Leu Lys Asp
 225 230 235 240

Ala Lys Asp Phe Gly Ile Lys Arg Thr Ile Ala Ser Lys Val Ser Leu
 245 250 255

Gly Ala Val Tyr Phe Phe Met Asn Gly Thr Tyr Gly Leu Ala Phe Trp
 260 265 270

Tyr Gly Thr Ser Leu Ile Leu Asn Gly Glu Pro Gly Tyr Thr Ile Gly
 275 280 285

Thr Val Leu Ala Val Phe Phe Ser Val Ile His Ser Ser Tyr Cys Ile
 290 295 300

Gly Ala Ala Val Pro His Phe Glu Thr Phe Ala Ile Ala Arg Gly Ala
 305 310 315 320

Ala Phe His Ile Phe Gln Val Ile Asp Lys Lys Pro Ser Ile Asp Asn
 325 330 335

Phe Ser Thr Ala Gly Tyr Lys Pro Glu Ser Ile Glu Gly Thr Val Glu
 340 345 350

Phe Lys Asn Val Ser Phe Asn Tyr Pro Ser Arg Pro Ser Ile Lys Ile
 355 360 365

Leu Lys Gly Leu Asn Leu Arg Ile Lys Ser Gly Glu Thr Val Ala Leu
 370 375 380

Val Gly Leu Asn Gly Ser Gly Lys Ser Thr Val Val Gln Leu Leu Gln
 385 390 395 400

Arg Leu Tyr Asp Pro Asp Asp Gly Phe Ile Met Val Asp Glu Asn Asp
 405 410 415

Ile Arg Ala Leu Asn Val Arg His Tyr Arg Asp His Ile Gly Val Val
 420 425 430

Ser Gln Glu Pro Val Leu Phe Gly Thr Thr Ile Ser Asn Asn Ile Lys
 435 440 445

Tyr Gly Arg Asp Asp Val Thr Asp Glu Glu Met Glu Arg Ala Ala Arg
 450 455 460

Glu Ala Asn Ala Tyr Asp Phe Ile Met Glu Phe Pro Asn Lys Phe Asn
 465 470 475 480

Thr Leu Val Gly Glu Lys Gly Ala Gln Met Ser Gly Gly Gln Lys Gln
 485 490 495

Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Asn Pro Lys Ile Leu Ile
 500 505 510

Leu Asp Glu Ala Thr Ser Ala Leu Asp Ser Glu Ser Lys Ser Ala Val
 515 520 525

Gln Ala Ala Leu Glu Lys Ala Ser Lys Gly Arg Thr Thr Ile Val Val
 530 535 540

Ala His Arg Leu Ser Thr Ile Arg Ser Ala Asp Leu Ile Val Thr Leu
 545 550 555 560

Lys Asp Gly Met Leu Ala Glu Lys Gly Ala His Ala Glu Leu Met Ala
 565 570 575

Lys Arg Gly Leu Tyr Tyr Ser Leu Val Met Ser Gln Asp Ile Lys Lys
 580 585 590

Ala Asp Glu Gln Met Glu Ser Met Thr Tyr Ser Thr Glu Arg Lys Thr
 595 600 605

Asn Ser Leu Pro Leu His Ser Val Lys Ser Ile Lys Ser Asp Phe Ile
 610 615 620

Asp Lys Ala Glu Glu Ser Thr Gln Ser Lys Glu Ile Ser Leu Pro Glu
 625 630 635 640

Val Ser Leu Leu Lys Ile Leu Lys Leu Asn Lys Pro Glu Trp Pro Phe
 645 650 655

Val Val Leu Gly Thr Leu Ala Ser Val Leu Asn Gly Thr Val His Pro
 660 665 670

Val Phe Ser Ile Ile Phe Ala Lys Ile Ile Thr Met Phe Gly Asn Asn
 675 680 685

Asp Lys Thr Thr Leu Lys His Asp Ala Glu Ile Tyr Ser Met Ile Phe
 690 695 700

Val Ile Leu Gly Val Ile Cys Phe Val Ser Tyr Phe Met Gln Gly Leu
 705 710 715 720

Phe Tyr Gly Arg Ala Gly Glu Ile Leu Thr Met Arg Leu Arg His Leu
 725 730 735

Ala Phe Lys Ala Met Leu Tyr Gln Asp Ile Ala Trp Phe Asp Glu Lys
 740 745 750

Glu Asn Ser Thr Gly Gly Leu Thr Thr Ile Leu Ala Ile Asp Ile Ala
 755 760 765

Gln Ile Gln Gly Ala Thr Gly Ser Arg Ile Gly Val Leu Thr Gln Asn
 770 775 780

Ala Thr Asn Met Gly Leu Ser Val Ile Ile Ser Phe Ile Tyr Gly Trp
 785 790 795 800

Glu Met Thr Phe Leu Ile Leu Ser Ile Ala Pro Val Leu Ala Val Thr
 805 810 815
 Gly Met Ile Glu Thr Ala Ala Met Thr Gly Phe Ala Asn Lys Asp Lys
 820 825 830
 Gln Glu Leu Lys His Ala Gly Lys Ile Ala Thr Glu Ala Leu Glu Asn
 835 840 845
 Ile Arg Thr Ile Val Ser Leu Thr Arg Glu Lys Ala Phe Glu Gln Met
 850 855 860
 Tyr Glu Glu Met Leu Gln Thr Gln His Arg Asn Thr Ser Lys Lys Ala
 865 870 875 880
 Gln Ile Ile Gly Ser Cys Tyr Ala Phe Ser His Ala Phe Ile Tyr Phe
 885 890 895
 Ala Tyr Ala Ala Gly Phe Arg Phe Gly Ala Tyr Leu Ile Gln Ala Gly
 900 905 910
 Arg Met Thr Pro Glu Gly Met Phe Ile Val Phe Thr Ala Ile Ala Tyr
 915 920 925
 Gly Ala Met Ala Ile Gly Lys Thr Leu Val Leu Ala Pro Glu Tyr Ser
 930 935 940
 Lys Ala Lys Ser Gly Ala Ala His Leu Phe Ala Leu Leu Glu Lys Lys
 945 950 955 960
 Pro Asn Ile Asp Ser Arg Ser Gln Glu Gly Lys Lys Pro Asp Thr Cys
 965 970 975
 Glu Gly Asn Leu Glu Phe Arg Glu Val Ser Phe Phe Tyr Pro Cys Arg
 980 985 990
 Pro Asp Val Phe Ile Leu Arg Gly Leu Ser Leu Ser Ile Glu Arg Gly
 995 1000 1005
 Lys Thr Val Ala Phe Val Gly Ser Ser Gly Cys Gly Lys Ser Thr
 1010 1015 1020
 Ser Val Gln Leu Leu Gln Arg Leu Tyr Asp Pro Val Gln Gly Gln
 1025 1030 1035
 Val Leu Phe Asp Gly Val Asp Ala Lys Glu Leu Asn Val Gln Trp
 1040 1045 1050
 Leu Arg Ser Gln Ile Ala Ile Val Pro Gln Glu Pro Val Leu Phe
 1055 1060 1065
 Asn Cys Ser Ile Ala Glu Asn Ile Ala Tyr Gly Asp Asn Ser Arg
 1070 1075 1080
 Val Val Pro Leu Asp Glu Ile Lys Glu Ala Ala Asn Ala Ala Asn
 1085 1090 1095
 Ile His Ser Phe Ile Glu Gly Leu Pro Glu Lys Tyr Asn Thr Gln
 1100 1105 1110
 Val Gly Leu Lys Gly Ala Gln Leu Ser Gly Gly Gln Lys Gln Arg
 1115 1120 1125

Leu Ala Ile Ala Arg Ala Leu Leu Gln Lys Pro Lys Ile Leu Leu
 1130 1135 1140
 Leu Asp Glu Ala Thr Ser Ala Leu Asp Asn Asp Ser Glu Lys Val
 1145 1150 1155
 Val Gln His Ala Leu Asp Lys Ala Arg Thr Gly Arg Thr Cys Leu
 1160 1165 1170
 Val Val Thr His Arg Leu Ser Ala Ile Gln Asn Ala Asp Leu Ile
 1175 1180 1185
 Val Val Leu His Asn Gly Lys Ile Lys Glu Gln Gly Thr His Gln
 1190 1195 1200
 Glu Leu Leu Arg Asn Arg Asp Ile Tyr Phe Lys Leu Val Asn Ala
 1205 1210 1215
 Gln Ser Val Gln
 1220

<210> 6

<211> 1195

<212> PRT

<213> Homo sapiens

<400> 6

Met Ile Leu Gly Ile Leu Ala Ser Leu Val Asn Gly Ala Cys Leu Pro
 1 5 10 15

Leu Met Pro Leu Val Leu Gly Glu Met Ser Asp Asn Leu Ile Ser Gly
 20 25 30

Cys Leu Val Gln Thr Asn Thr Tyr Ser Phe Phe Arg Leu Thr Leu Tyr
 35 40 45

Tyr Val Gly Ile Gly Val Ala Ala Leu Ile Phe Gly Tyr Ile Gln Ile
 50 55 60

Ser Leu Trp Ile Ile Thr Ala Ala Arg Gln Thr Lys Arg Ile Arg Lys
 65 70 75 80

Gln Phe Phe His Ser Val Leu Ala Gln Asp Ile Gly Trp Phe Asp Ser
 85 90 95

Cys Asp Ile Gly Glu Leu Asn Thr Arg Met Thr Asp Ile Asp Lys Ile
 100 105 110

Ser Asp Gly Ile Gly Asp Lys Ile Ala Leu Leu Phe Gln Asn Met Ser
 115 120 125

Thr Phe Ser Ile Gly Leu Ala Val Gly Leu Val Lys Gly Trp Lys Leu
 130 135 140

Thr Leu Val Thr Leu Ser Thr Ser Pro Leu Ile Met Ala Ser Ala Ala
 145 150 155 160

Ala Cys Ser Arg Met Val Ile Ser Leu Thr Ser Lys Glu Leu Ser Ala
 165 170 175
 Tyr Ser Lys Ala Gly Ala Val Ala Glu Glu Val Leu Ser Ser Ile Arg
 180 185 190
 Thr Val Ile Ala Phe Arg Ala Gln Glu Lys Glu Leu Gln Arg Tyr Thr
 195 200 205
 Gln Asn Leu Lys Asp Ala Lys Asp Phe Gly Ile Lys Arg Thr Ile Ala
 210 215 220
 Ser Lys Val Ser Leu Gly Ala Val Tyr Phe Met Asn Gly Thr Tyr
 225 230 235 240
 Gly Leu Ala Phe Trp Tyr Gly Thr Ser Leu Ile Leu Asn Gly Glu Pro
 245 250 255
 Gly Tyr Thr Ile Gly Thr Val Leu Ala Val Phe Phe Ser Val Ile His
 260 265 270
 Ser Ser Tyr Cys Ile Gly Ala Ala Val Pro His Phe Glu Thr Phe Ala
 275 280 285
 Ile Ala Arg Gly Ala Ala Phe His Ile Phe Gln Val Ile Asp Lys Lys
 290 295 300
 Pro Ser Ile Asp Asn Phe Ser Thr Ala Gly Tyr Lys Pro Glu Ser Ile
 305 310 315 320
 Glu Gly Thr Val Glu Phe Lys Asn Val Ser Phe Asn Tyr Pro Ser Arg
 325 330 335
 Pro Ser Ile Lys Ile Leu Lys Gly Leu Asn Leu Arg Ile Lys Ser Gly
 340 345 350
 Glu Thr Val Ala Leu Val Gly Leu Asn Gly Ser Gly Lys Ser Thr Val
 355 360 365
 Val Gln Leu Leu Gln Arg Leu Tyr Asp Pro Asp Asp Gly Phe Ile Met
 370 375 380
 Val Asp Glu Asn Asp Ile Arg Ala Leu Asn Val Arg His Tyr Arg Asp
 385 390 395 400
 His Ile Gly Val Val Ser Gln Glu Pro Val Leu Phe Gly Thr Thr Ile
 405 410 415
 Ser Asn Asn Ile Lys Tyr Gly Arg Asp Asp Val Thr Asp Glu Glu Met
 420 425 430
 Glu Arg Ala Ala Arg Glu Ala Asn Ala Tyr Asp Phe Ile Met Glu Phe
 435 440 445
 Pro Asn Lys Phe Asn Thr Leu Val Gly Glu Lys Gly Ala Gln Met Ser
 450 455 460
 Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Asn
 465 470 475 480
 Pro Lys Ile Leu Ile Leu Asp Glu Ala Thr Ser Ala Leu Asp Ser Glu
 485 490 495

Ser Lys Ser Ala Val Gln Ala Ala Leu Glu Lys Ala Ser Lys Gly Arg
 500 505 510
 Thr Thr Ile Val Val Ala His Arg Leu Ser Thr Ile Arg Ser Ala Asp
 515 520 525
 Leu Ile Val Thr Leu Lys Asp Gly Met Leu Ala Glu Lys Gly Ala His
 530 535 540
 Ala Glu Leu Met Ala Lys Arg Gly Leu Tyr Tyr Ser Leu Val Met Ser
 545 550 555 560
 Gln Asp Ile Lys Lys Ala Asp Glu Gln Met Glu Ser Met Thr Tyr Ser
 565 570 575
 Thr Glu Arg Lys Thr Asn Ser Leu Pro Leu His Ser Val Lys Ser Ile
 580 585 590
 Lys Ser Asp Phe Ile Asp Lys Ala Glu Glu Ser Thr Gln Ser Lys Glu
 595 600 605
 Ile Ser Leu Pro Glu Val Ser Leu Leu Lys Ile Leu Lys Leu Asn Lys
 610 615 620
 Pro Glu Trp Pro Phe Val Val Leu Gly Thr Leu Ala Ser Val Leu Asn
 625 630 635 640
 Gly Thr Val His Pro Val Phe Ser Ile Ile Phe Ala Lys Ile Ile Thr
 645 650 655
 Met Phe Gly Asn Asn Asp Lys Thr Thr Leu Lys His Asp Ala Glu Ile
 660 665 670
 Tyr Ser Met Ile Phe Val Ile Leu Gly Val Ile Cys Phe Val Ser Tyr
 675 680 685
 Phe Met Gln Gly Leu Phe Tyr Gly Arg Ala Gly Glu Ile Leu Thr Met
 690 695 700
 Arg Leu Arg His Leu Ala Phe Lys Ala Met Leu Tyr Gln Asp Ile Ala
 705 710 715 720
 Trp Phe Asp Glu Lys Glu Asn Ser Thr Gly Gly Leu Thr Thr Ile Leu
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 Ala Ile Asp Ile Ala Gln Ile Gln Gly Ala Thr Gly Ser Arg Ile Gly
 740 745 750
 Val Leu Thr Gln Asn Ala Thr Asn Met Gly Leu Ser Val Ile Ile Ser
 755 760 765
 Phe Ile Tyr Gly Trp Glu Met Thr Phe Leu Ile Leu Ser Ile Ala Pro
 770 775 780
 Val Leu Ala Val Thr Gly Met Ile Glu Thr Ala Ala Met Thr Gly Phe
 785 790 795 800
 Ala Asn Lys Asp Lys Gln Glu Leu Lys His Ala Gly Lys Ile Ala Thr
 805 810 815
 Glu Ala Leu Glu Asn Ile Arg Thr Ile Val Ser Leu Thr Arg Glu Lys
 820 825 830

Ala Phe Glu Gln Met Tyr Glu Glu Met Leu Gln Thr Gln His Arg Asn
 835 840 845

Thr Ser Lys Lys Ala Gln Ile Ile Gly Ser Cys Tyr Ala Phe Ser His
 850 855 860

Ala Phe Ile Tyr Phe Ala Tyr Ala Ala Gly Phe Arg Phe Gly Ala Tyr
 865 870 875 880

Leu Ile Gln Ala Gly Arg Met Thr Pro Glu Gly Met Phe Ile Val Phe
 885 890 895

Thr Ala Ile Ala Tyr Gly Ala Met Ala Ile Gly Lys Thr Leu Val Leu
 900 905 910

Ala Pro Glu Tyr Ser Lys Ala Lys Ser Gly Ala Ala His Leu Phe Ala
 915 920 925

Leu Leu Glu Lys Lys Pro Asn Ile Asp Ser Arg Ser Gln Glu Gly Lys
 930 935 940

Lys Pro Asp Thr Cys Glu Gly Asn Leu Glu Phe Arg Glu Val Ser Phe
 945 950 955 960

Phe Tyr Pro Cys Arg Pro Asp Val Phe Ile Leu Arg Gly Leu Ser Leu
 965 970 975

Ser Ile Glu Arg Gly Lys Thr Val Ala Phe Val Gly Ser Ser Gly Cys
 980 985 990

Gly Lys Ser Thr Ser Val Gln Leu Leu Gln Arg Leu Tyr Asp Pro Val
 995 1000 1005

Gln Gly Gln Val Leu Phe Asp Gly Val Asp Ala Lys Glu Leu Asn
 1010 1015 1020

Val Gln Trp Leu Arg Ser Gln Ile Ala Ile Val Pro Gln Glu Pro
 1025 1030 1035

Val Leu Phe Asn Cys Ser Ile Ala Glu Asn Ile Ala Tyr Gly Asp
 1040 1045 1050

Asn Ser Arg Val Val Pro Leu Asp Glu Ile Lys Glu Ala Ala Asn
 1055 1060 1065

Ala Ala Asn Ile His Ser Phe Ile Glu Gly Leu Pro Glu Lys Tyr
 1070 1075 1080

Asn Thr Gln Val Gly Leu Lys Gly Ala Gln Leu Ser Gly Gly Gln
 1085 1090 1095

Lys Gln Arg Leu Ala Ile Ala Arg Ala Leu Leu Gln Lys Pro Lys
 1100 1105 1110

Ile Leu Leu Leu Asp Glu Ala Thr Ser Ala Leu Asp Asn Asp Ser
 1115 1120 1125

Glu Lys Val Val Gln His Ala Leu Asp Lys Ala Arg Thr Gly Arg
 1130 1135 1140

Thr Cys Leu Val Val Thr His Arg Leu Ser Ala Ile Gln Asn Ala
 1145 1150 1155

Asp	Leu	Ile	Val	Val	Leu	His	Asn	Gly	Lys	Ile	Lys	Glu	Gln	Gly
1160					1165						1170			
Thr	His	Gln	Glu	Leu	Leu	Arg	Asn	Arg	Asp	Ile	Tyr	Phe	Lys	Leu
1175					1180						1185			
Val	Asn	Ala	Gln	Ser	Val	Gln								
1190					1195									

<210> 7

<211> 541

<212> PRT

<213> Homo sapiens

<220>

<221> Note

<222> (230)..(230)

<223> Xaa at position 230 represents any L amino acid

<400> 7

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	20				25							30			

Cys	Leu	Val	Gln	Thr	Asn	Thr	Tyr	Ser	Phe	Phe	Arg	Leu	Thr	Leu	Tyr
	35				40						45				

Tyr	Val	Gly	Ile	Gly	Val	Ala	Ala	Leu	Ile	Phe	Gly	Tyr	Ile	Gln	Ile
	50				55					60					

Ser	Leu	Trp	Ile	Ile	Thr	Ala	Ala	Arg	Gln	Thr	Lys	Arg	Ile	Arg	Lys
65					70				75		80				

Gln	Phe	Phe	His	Ser	Val	Leu	Ala	Gln	Asp	Ile	Gly	Trp	Phe	Asp	Ser
	85					90					95				

Cys	Asp	Ile	Gly	Glu	Leu	Asn	Thr	Arg	Met	Thr	Asp	Ile	Asp	Lys	Ile
	100					105					110				

Ser	Asp	Gly	Ile	Gly	Asp	Lys	Ile	Ala	Leu	Leu	Phe	Gln	Asn	Met	Ser
	115				120						125				

Thr	Phe	Ser	Ile	Gly	Leu	Ala	Val	Gly	Leu	Val	Lys	Gly	Trp	Lys	Leu
130					135					140					

Thr	Leu	Val	Thr	Leu	Ser	Thr	Ser	Pro	Leu	Ile	Met	Ala	Ser	Ala	Ala
145					150				155		160				

Ala	Cys	Ser	Arg	Met	Val	Ile	Ser	Leu	Thr	Ser	Lys	Glu	Leu	Ser	Ala
	165					170					175				

Tyr Ser Lys Ala Gly Ala Val Ala Glu Glu Val Leu Ser Ser Ile Arg
 180 185 190
 Thr Val Ile Ala Phe Arg Ala Gln Glu Lys Glu Leu Gln Arg Ser Phe
 195 200 205
 Leu Leu Asn Ile Thr Arg Tyr Ala Trp Phe Tyr Phe Pro Gln Trp Leu
 210 215 220
 Leu Ser Cys Val Leu Xaa Phe Val Arg Tyr Thr Gln Asn Leu Lys Asp
 225 230 235 240
 Ala Lys Asp Phe Gly Ile Lys Arg Thr Ile Ala Ser Lys Val Ser Leu
 245 250 255
 Gly Ala Val Tyr Phe Phe Met Asn Gly Thr Tyr Gly Leu Ala Phe Trp
 260 265 270
 Tyr Gly Thr Ser Leu Ile Leu Asn Gly Glu Pro Gly Tyr Thr Ile Gly
 275 280 285
 Thr Val Leu Ala Val Phe Phe Ser Val Ile His Ser Ser Tyr Cys Ile
 290 295 300
 Gly Ala Ala Val Pro His Phe Glu Thr Phe Ala Ile Ala Arg Gly Ala
 305 310 315 320
 Ala Phe His Ile Phe Gln Val Ile Asp Lys Lys Pro Ser Ile Asp Asn
 325 330 335
 Phe Ser Thr Ala Gly Tyr Lys Pro Glu Ser Ile Glu Gly Thr Val Glu
 340 345 350
 Phe Lys Asn Val Ser Phe Asn Tyr Pro Ser Arg Pro Ser Ile Lys Ile
 355 360 365
 Leu Lys Gly Leu Asn Leu Arg Ile Lys Ser Gly Glu Thr Val Ala Leu
 370 375 380
 Val Gly Leu Asn Gly Ser Gly Lys Ser Thr Val Val Gln Leu Leu Gln
 385 390 395 400
 Arg Leu Tyr Asp Pro Asp Asp Gly Phe Ile Met Val Asp Glu Asn Asp
 405 410 415
 Ile Arg Ala Leu Asn Val Arg His Tyr Arg Asp His Ile Gly Val Val
 420 425 430
 Ser Gln Glu Pro Val Leu Phe Gly Thr Thr Ile Ser Asn Asn Ile Lys
 435 440 445
 Tyr Gly Arg Asp Asp Val Thr Asp Glu Glu Met Glu Arg Ala Ala Arg
 450 455 460
 Glu Ala Asn Ala Tyr Asp Phe Ile Met Glu Phe Pro Asn Lys Phe Asn
 465 470 475 480
 Thr Leu Val Gly Glu Lys Gly Ala Gln Met Ser Gly Gly Gln Lys Gln
 485 490 495
 Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Asn Pro Lys Ile Leu Ile
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Leu Asp Glu Ala Thr Ser Ala Leu Asp Ser Glu Ser Lys Ser Ala Val
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Gln Ala Ala Leu Glu Lys Asp Thr Pro Arg Tyr Ser Phe
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<211> 514

<212> PRT

<213> Homo sapiens

<400> 8

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Cys Leu Val Gln Thr Asn Thr Tyr Ser Phe Phe Arg Leu Thr Leu Tyr
 35 40 45

Tyr Val Gly Ile Gly Val Ala Ala Leu Ile Phe Gly Tyr Ile Gln Ile
 50 55 60

Ser Leu Trp Ile Ile Thr Ala Ala Arg Gln Thr Lys Arg Ile Arg Lys
 65 70 75 80

Gln Phe Phe His Ser Val Leu Ala Gln Asp Ile Gly Trp Phe Asp Ser
 85 90 95

Cys Asp Ile Gly Glu Leu Asn Thr Arg Met Thr Asp Ile Asp Lys Ile
 100 105 110

Ser Asp Gly Ile Gly Asp Lys Ile Ala Leu Leu Phe Gln Asn Met Ser
 115 120 125

Thr Phe Ser Ile Gly Leu Ala Val Gly Leu Val Lys Gly Trp Lys Leu
 130 135 140

Thr Leu Val Thr Leu Ser Thr Ser Pro Leu Ile Met Ala Ser Ala Ala
 145 150 155 160

Ala Cys Ser Arg Met Val Ile Ser Leu Thr Ser Lys Glu Leu Ser Ala
 165 170 175

Tyr Ser Lys Ala Gly Ala Val Ala Glu Glu Val Leu Ser Ser Ile Arg
 180 185 190

Thr Val Ile Ala Phe Arg Ala Gln Glu Lys Glu Leu Gln Arg Tyr Thr
 195 200 205

Gln Asn Leu Lys Asp Ala Lys Asp Phe Gly Ile Lys Arg Thr Ile Ala
 210 215 220

Ser Lys Val Ser Leu Gly Ala Val Tyr Phe Phe Met Asn Gly Thr Tyr
 225 230 235 240

Gly Leu Ala Phe Trp Tyr Gly Thr Ser Leu Ile Leu Asn Gly Glu Pro
 245 250 255
 Gly Tyr Thr Ile Gly Thr Val Leu Ala Val Phe Phe Ser Val Ile His
 260 265 270
 Ser Ser Tyr Cys Ile Gly Ala Ala Val Pro His Phe Glu Thr Phe Ala
 275 280 285
 Ile Ala Arg Gly Ala Ala Phe His Ile Phe Gln Val Ile Asp Lys Lys
 290 295 300
 Pro Ser Ile Asp Asn Phe Ser Thr Ala Gly Tyr Lys Pro Glu Ser Ile
 305 310 315 320
 Glu Gly Thr Val Glu Phe Lys Asn Val Ser Phe Asn Tyr Pro Ser Arg
 325 330 335
 Pro Ser Ile Lys Ile Leu Lys Gly Leu Asn Leu Arg Ile Lys Ser Gly
 340 345 350
 Glu Thr Val Ala Leu Val Gly Leu Asn Gly Ser Gly Lys Ser Thr Val
 355 360 365
 Val Gln Leu Leu Gln Arg Leu Tyr Asp Pro Asp Asp Gly Phe Ile Met
 370 375 380
 Val Asp Glu Asn Asp Ile Arg Ala Leu Asn Val Arg His Tyr Arg Asp
 385 390 395 400
 His Ile Gly Val Val Ser Gln Glu Pro Val Leu Phe Gly Thr Thr Ile
 405 410 415
 Ser Asn Asn Ile Lys Tyr Gly Arg Asp Asp Val Thr Asp Glu Glu Met
 420 425 430
 Glu Arg Ala Ala Arg Glu Ala Asn Ala Tyr Asp Phe Ile Met Glu Phe
 435 440 445
 Pro Asn Lys Phe Asn Thr Leu Val Gly Glu Lys Gly Ala Gln Met Ser
 450 455 460
 Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Asn
 465 470 475 480
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 Ser Phe

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 <212> DNA
 <213> Homo sapiens

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 aacagatgga gtcaatgaca tattctactg aaagaaagac caactcaactt cctctgcact 240
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 ccatcatctt tgcaaaaaatt ataaccatgt ttggaaataa tgataaaacc acattaaagc 480
 atgatgcaga aatttattcc atgatattcg tcattttggg ttttgc tttgtcagtt 540
 atttcatgca gggattattt tacggcagag cagggaaat tttaacgatg agattaagac 600
 acttggcctt caaagccatg ttatattcagg atattgcctg gtttgcataa aaggaaaaca 660
 gcacaggagg cttgacaaca atattagcca tagatatacg acaaattcaa ggagcaacag 720
 gttccaggat tggcgtctta acacaaaatg caactaacat gggactttca gttatcattt 780
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gtgagaaggt ggttcagcat gcccttgata aagccaggac gggaggaca tgcctagtgg	1920
tcaactcacag gctctctgca attcagaacg cagatttgc agtggttctg cacaatggaa	1980
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<211> 2856

<212> DNA

<213> Homo sapiens

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cccagtatag ataacttttc cacagctgga tataaacctg aatccataga aggaactgtg	240
gaatttaaaa atgtttcttt caatttatcca tcaagaccat ctatcaagat tctgaaaggt	300
ctgaatctca gaattaagtc tggagagaca gtcgccttgg tcggctctcaa tggcagtggg	360
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caatctaaag agataagtct tcctgaagtc tctctattaa aaattttaaa gttaaacaag	1140
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ccagttttt ccatcatctt tgcaaaaatt ataaccatgt ttggaaataa tgataaaacc	1260
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<211> 1175

<212> DNA

<213> Homo sapiens

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cccagtatacg ataaactttc cacagctgga tataaacctg aatccataga aggaactgtg	240
gaatttaaaa atgtttcttt caattatcca tcaagaccat ctatcaagat tctgaaaggt	300
ctgaatctca gaattaagtc tggagagaca gtcgccttgg tcggctctcaa tggcagtggg	360
aagagtacgg tagtccagct tctgcagagg ttatatgatc cgatgatgg ctttatcatg	420
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ctcgatggcc tgactccctt ataaaccaga gccttcagac cccttacaag gcttaatggc	1080
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<210> 12

<211> 3177

<212> DNA

<213> Homo sapiens

<220>

<221> Note

<222> (198)...(198)

<223> n at position 198 represents any nucleotide (A, T, C or G)

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<210> 13

<211> 3702

<212> DNA

<213> Homo sapiens

<220>

<221> Note

<222> (723) .. (723)

<223> n at position 723 represents any nucleotide (A, T, C or G)

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<212> DNA
<213> Homo sapiens

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<210> 15

<211> 2021

<212> DNA

<213> Homo sapiens

<220>

<221> Note

<222> (723)..(723)

<223> n at position 723 represents any nucleotide (A, T, C or G)

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<211> 1940

<212> DNA

<213> Homo sapiens

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Cys